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ind

29) North of Floyd's Fork. Hays Spring.

2  $\frac{2}{3}$  ft clay. Upper Ozgrod.

5  $\frac{1}{2}$  ft Ozgrod limest.

21 ft. Thick Ozgrod clay. Some indurated layers at top.

1  $\frac{1}{2}$  ft. Transition rock See page 8.

15 in. Salmon brown Clinton.

25 ft { Fairly hard just below Clinton.  
Madison - weathered to thin bedded  
stuff. (No gastropod bed at top)

3 ft More like banded Madison.

8 ft. Clay rock spalling in all directions.

2  $\frac{1}{2}$  ft Soft clay.

(2-3 in. Limestone with

*Strophomena planumbona*

*Streptelasma rusticum*

*Rhynchotrema capax*

The rocks next mentioned consist  
chiefly of small limestone rubble. Very  
little limestone in hard layers.

5  $\frac{1}{2}$  ft

5  $\frac{1}{2}$  ft *Strophomena planumbona* at base

5  $\frac{1}{2}$  ft *Protarea vetusta* common

*Strophomena planumbona* common

11 ft *Protarea vetusta* at top

0 — *Streptelasma rusticum* = 66 ft  
below Clinton.

1 ft. Soft dark blue clay.

0 ft *Columnaria palli*? with corallites  
separate at top so as to leave a  
separate spitheca.

9 ft. Soft clay limst. + soft clay. Fossils.

31 ft. Fairly solid limst. With very few fossils.

3 in. Coarse congl. pebbles = 3 in.

That part of the section below the double line  
was secured at locality = 30



2)

29a

29a) South of Floyd's Fork.

Immediately S of the Bridge. On  
~~Streptelasma rusticum~~ road to  
 Mt Washington.

Abundant Richmond fossils in  
 soft rubble clay begin 15 ft higher  
 to our next layer

0 Streptelasma rusticum.

1 ft Soft dark blue clay. Columnaria  
 with corallites separate at top in place  
 and having separate epitheca.

9 ft. Soft clayey limestone and soft clay

31 ft Fairly solid limestone. Practically  
 with int fossils or with very few.

3 in. Coarse congl. pebbles - 3 in. in diam.

12 ft. Solid l. with very few fossils.

12 ft. Softer clay.

Clayey thin limest. full of bryozoans  
 + *Orthis laticosta*, var.

The lower part of the Floyd's Fork  
 section, as far up as the *Streptelas-*  
*ma rusticum* layer, contains a  
 considerable amount of fairly solid  
 limestone.

The *Strophomena planumbona*  
 comes in with the soft clay full of  
 rubble limestone, in the Richmond  
 group, above.

30

Cont. on page 8.

(3)

30)

30)

$1\frac{3}{4}$  mi. from Floyd's bridge  
 North of Mrs. Mary E. Clark.

Upper Ozgood clay

5 ft

Osgood limest. = Lower Laurel?

17 ft

Lower Ozgood clay

2 ft

Basal Niagara

2½ ft

Salmon brown Clinton.

20 ft

3 ft. weathering thin bedded. Massive south.

6 ft. banded Madison.

11 ft. weathering thin bedded.

3½ ft

banded Madison.

8 ft.

Weathers to thin bedded Madison.

?

2 ft

Harder bed, clayey, spally. thin.

13½ ft.

Clayey. Fossils get scarce towards  
 top

3½ ft

Portarea, Streptelasma, Rhynchotrema

Limest.

Capax, St. planumbona, small.

rubble.

Abundant Lower Richmond fauna.

At base St. planumbona begins to  
 be common.

5 ft.

Limest. rubble. with fossils. St. planum-  
 bona is found 2 ft above base.

2 in.

limest. Streptelasma.

3 ft.

clay and clayey limest. At base is

limest. with Streptelasma + Columnaria

22 ft.

rubble limest. Fossils common

but no Richmond fossils are recog-  
 nized.

3 ft

clayey.

5 ft 6 in.

(May = 10 ft?) with Tetradinum.

15 ft 9 in

Massive l. with globose Chaetetes

as at Howard's mill.

14 ft.

Massive l. interbedded with soft clay.

12 ft

soft clay.

2 ft.

Clayey limest. full of fossils, bryozo-

ans, + *Orthis laticosta*.



4)

31

Cont. on p. 8.

South of Mt Washington. Along  
Whittaker's creek, along Boardman pike.

Salmon brown Clinton.

- 31½ ft. Good bedded Madison.  
8 ft. { Poor massive Madison above.  
Sandy clay below owing to weathering  
1½ ft full of fossils.  
3 in. limestone.  
23½ ft { Concretionary rubble limestone full  
of fossils.  
At top = *Stroph. sulcata* + *Orthis occidentalis*  
with scarcely distinct dorsal sinns.  
4½ ft Concretionary rubble limestone. At base  
with *Beatrixia undulata* + *Heterospangia*  
at top is *Strophomena rusticum*.  
12 ft covered. Probably like rock beneath.  
41 ft. Massive Madison Lover.  
Quite massive until near base  
when it becomes a <sup>more</sup> clayey rock.  
5 ft. Soft clay rock.  
2 ft 8 in. Clayey limestone with *Constel-*  
*laria prominens*? One large *Orthis*  
*lynx* with subquadrate form. = the  
bed at base of Floyd Fork section.  
2 ft 6 in. Hard limestone with fossils.  
19½ ft. Clay rock limestone full of fossils.  
One strong *Orthis lynx* = subquadrate  
form.  
Hard limest. Top 4 in. = flat. Below =  
crossbedded. Beautifully exposed by  
weathering. Crossbedding due to  
wave action, forming crescentic sweeps.  
Waves from the West. About 20 ft long.  
Shore runs N 40 W.

2 ft total

Sweep of waves from SW.

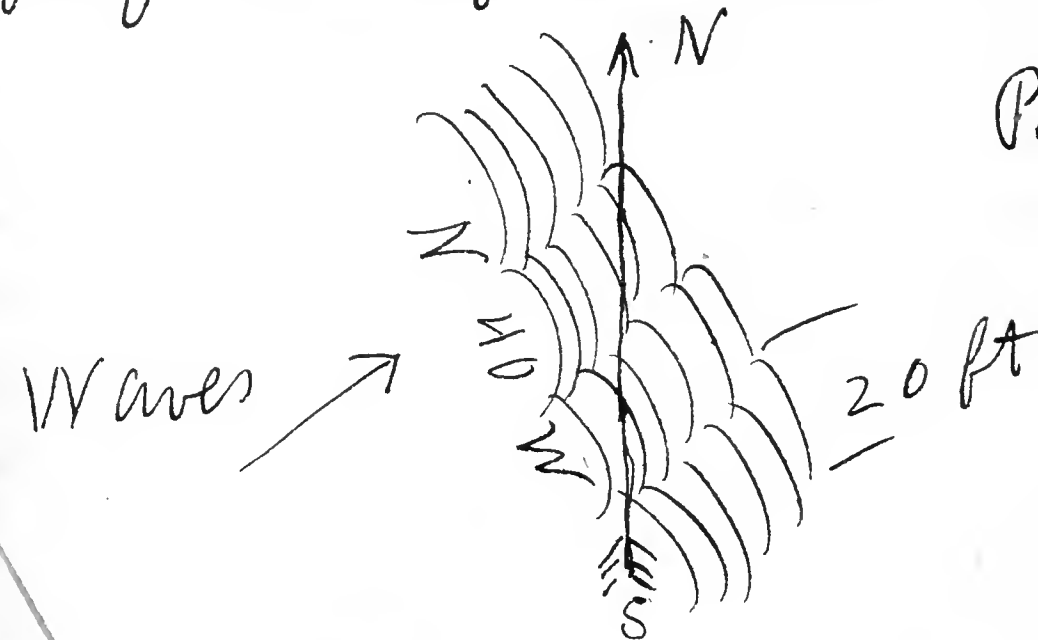


Photo 5.  
Clinton.  
Photo 6.7.  
Waves.

A very dark blue sandy layer of lime-  
stone contains *Orthis lynx* more a-  
bundantly.

- 28 ft { 1½ ft. More, crossbedded sandy limestone.  
Coarse dark blue limestone with *Orthis*  
*lynx* abundant down to level of  
creek at Jasper's store, a short dis-  
tance N. of where the road towards  
Grinnel's Ford turns off westward.  
Base of *Orthis lynx* bed not seen  
here.

Grinnel's Ford to Jasper's store = 4 mi.  
Smithville " " " " = ¾ " "  
Gar rock " " " " = 2 "

Grinnel's Ford to Lick Skillet = S 4 mi.  
Shepherdsville " " " " = W 3 mi.



6.

32

Cont. on page 9.

200 ft. south of Asa Lutes,  $\frac{1}{8}$  mi. S. of  
Greenwell's Ford.

4 ft 2 in. Clinton. salmon brown + siliceous.  
siliceous red on top.

26 ft. banded Madison.

20 ft. The upper part grades into the Madison.  
Only the lower 9 feet fossiliferous. Only  
Lower Richmond fossils seen.

11 ft. At top *Strophomena planumbona* is com-  
mon. Clayey. *Strophomena* occurs  
2 feet above coral bed and also in  
thin blue limestone 2 in. above coral  
bed.

1 ft. *Columnaria halli* bed. Corals abundant.  
*Tetradium minus* just beneath.

9 ft. covered. Probably soft clay rock.

6 ft. Limestone layers with fossils in clay rock between.  
Road turns off W up Lutes Hill.

35 ft. Lower Madison. solid, green clayey rock.

1 ft 8 in. *Columnaria halli* rather common.

12 ft. Various clayey rocks.

6 ft. Fossiliferous clayey limestone, weathering to clay  
with *Orthis laticosta* var.

5 in. Solid blue limestone, with fossils.

9 ft. Fossils above, less common below.

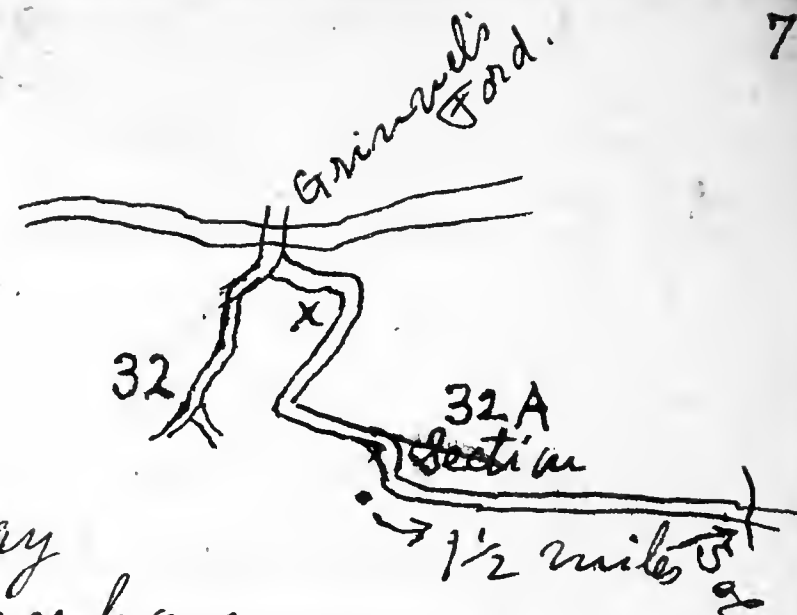
2 ft. Level sandy rock with rough top, overlying  
crossbedded layer, over second level rock  
over second crossbedded layer with coarse  
*Orthis lynx* silicified. More sandy  
rock with *Orthis lynx* below.

Section ends within 50 feet of Mr. Mont  
Roby's house.

32 A

7

X = From Grinnell's Ford  
E  $\frac{1}{2}$  mi. Then up steep hill



Cedar glades due to

abundant Osgood clay

Osgood clay purple near base

3 ft 10 in. basal Niagara. in solid 8 in. layers.  
2 ft. Clinton.

Kirby Jones Section = 32A

From X road turns S 40 W for  $\frac{3}{4}$  mi.  
then S 70 E on gravel road for  $\frac{1}{2}$  mi and  
then down hill along fine section.  
= good steep section.

5  $\frac{1}{2}$  ft. solid limestone - Lower Gannet?

2 ft. clayey limestone - upper Osgood clay?

18 ft. Osgood clay

5  $\frac{1}{2}$  ft. basal Niagara. = thick layers.

1 ft. gray Clinton. With fossils.

25 ft. banded Madison.

11 ft. brown sandy clay.

2  $\frac{1}{2}$  ft. clay with *Stroph. planumbona*.

3 ft. limestone rubble with *Stroph. sulcata*,  
*Rhynch. capax*, *Protarea vetusta*, *Stroph.*  
*planumbona*. Near top are thin lime-  
stone layers with *Stroph. planumbona*.

6 ft. *Stroph. planumbona* begins at top of rubble  
limestone

1 in. Thin limestone with *Column. alveolata*.

2 ft 2 in. rubble stone.

8 in. *Strophomena* 6 in. above corals in limestone.

1 ft. Coral bed.

15 ft. soft

2 ft. solid.

11 ft. Part weathered to porous rubble.

38  $\frac{1}{2}$  ft. = Lower Madison solid rock.  
0 ft. rock with *Orthis laticosta* var.

Clinton with *Plectambonites sericea*.

*Rhinopora frondosa* typical.

*Orthis* (*Dalmanella*) *elegantula*.

(*Stroph.*) *Orthothetes subplana*. - flat but raised at beak.

*Orthis flabellites*

*Favosites favosus*.

21 ft. Ozgrod clay

8 in. basal Ozgrod, no chert, reddish brown. siliceous.

2½ ft. Clinton. salmon brown. coarse grained and rough irregular bedded. No chert. Upper 4 inches with whitish blotches. This may be the cherty part southwards. [= N. of Flagg's Fork.

The basal Ozgrod clays are purplish.

all exposed as at Hays Spring.

2 ft. basal Niagara.

3-4 in. of reddish siliceous rock.

21 in. salmon brown, coarse + irregularly bedded. [= 1 mi. N. of Mount Washington.)

Ozgrod limest.

20 ft. Ozgrod clay. Purple below, indurated above.

44 in. basal Ozgrod Niagara No chert

24 in. transition, red. sil. with *Favosites favosus*.

22-44 in. salmon brown typ. Clinton. *Halyx* etc.

*Orthothetes* with flat valve and raised beak.

*Orthis flabellites*. *Rhinopora frondosa*. *Gyath.*

*Phyllopora Daytonensis*, large specimen.

Very rough bedded Clinton with sandy patches.

Lanrel

S. of Asa Lutes house.

2 ft. clayey

3½ ft. Ozgrod limestone

22 ft. Ozgrod clay purple at base.

2½ ft. basal Niagara. brown clayey rock.

10 in. hard stone. Whitish where not weathered. Traces of chert at top.

15 in. Thin bedded whitish rock.

20 in. granular blue Clinton.

A few hundred feet N of Asa Lutes house the Clinton is salmon colored. 20 inches thick, and contains *Orthis flabellites*.



at W.R. Greenwell's house, about 1 1/4 miles from Greenwell's Ford.

Corallitic layer 2-3 inches thick.  
Laural.

{ Osgood limestone not well exposed  
34 feet to top of Laurel from next  
6 ft harder rock ←  
6 1/2 feet indurated clay rock.  
13-15 ft of softer Osgood clay. lower part  
not well exposed.  
Whole = Osgood clay section.

2 ft rotten limestone with traces of chert  
in lower part = called Clinton southward.

4 ft. Granular grained Clinton, chiefly  
blue, but a portion 6 in. from the top  
is salmon tinged in places. Contains  
Halysites, Orthis bifurcata and  
Orthis flabellites, at all levels in case  
of last two species.

End of section at Jess Ruby's house.

34

Cedar creek 1/2 mi. beyond Ted Weller.

Osgood clay. lower part = 18 1/2 ft. beautifully  
banded with red purple and greenish brown.

Basal Niagara not measured.

6 ft. Clinton. probably not the total section.  
Chert 2 ft from top. Indurated clay above the  
Clinton. thickness unknown.

Exposed for 1/3 mi. in creek, along the road.

Weller's house. About 1 mi. N of  
Skillet.

Coniferous. very white. No fossils.  
about 20 ft. above the (Louisville?)  
Waldron shale.

36

About 3 mi. from Shepherdsville, along the  
creek below Lick Skillet.

Weller's Run or Bull's Run on Mt. Washington road.  
Waldron shale

3 in. corallitic rock.

Laurel. base not seen but thick  
section exposed along creek.

37

One and a half mile from Shepherdsville  
on road to Cedar Grove Church.

Black shale

Crimoidal Coniferous.

Thick exp. of Louisville

Pentamerus oblongus in loose blocks  
beside the road.



Come Springs store, 10 full miles to  
Shepherdsville, SE of store's mile

Clay layer

- 5½ ft. Osgood limestone.
- 5 ft. indurated clay, calcareous.
- 17 ft. Osgood clay, brown above, blue middle,  
purple below.
- 2 ft. basal Osgood. prn.
- 5¼ ft. Clinton with cherty layers.
- 6 in. granular bluish Clinton.
- Photos 6 (200 ft) 7-150, 8-40 ft, 9-10 feet  
off from Osgood clay exposure.

39

Along boundary creek, E of Come Spg. Stat.  
1¼ mile east of station.

Black shale.

Coniferous, coarsely crinoidal. Thickness  
unknown.

3-5 ft. Louisville varies from 3-5 feet in  
thickness at different points.

9 ft. Walden shale

1 ft. Acolitic.

Lamell not measured.

Osgood clay not measured

Osgood limestone " " "

23½ ft. Osgood clay purple below. Exposed in  
a little gully on E side of creek N of  
house with distillery etc.

4 ft. Basal Osgood limestone decayed, crumbling  
stuff

Clinton. top of chert is 1 foot below top of  
Clinton.

In lower layer 9 feet below top of Clinton  
occur: worm borrows on top of l. layer.  
*Clathrospira frondosa*.  
*Phacelopora multifida* with  
less numerous branches.  
*Orthis flabellites*  
*Dalmanella elegantula*.  
*Plectambonites transversalis*  
*Strophomena patentera* with  
anterior margin not turned  
up.

About 7-9 feet below top of Clinton or  
for 2 feet above fossil layer the  
rock contains calcite masses. The  
cherty layers begin higher up.

On a former visit the following Clinton  
notes were secured:

*Orthis flabellites* is common 6 ft 8 in.  
below Osgood clay base, in siliceous  
bluish rock.

*Orthis flabellites* common also 7 ft 2 in.  
below Osgood clay in crinoidal blue rock.  
Next chert is 2 feet below Osgood clay  
base and it contains *Favosites*,  
*Favosites*, *Orthis flabellites*, *Orthis othetes*  
flat with raised beak.

Where road leaves creek and turns  
W. to Come Springs store, the crinoidal  
Clinton is 8-9 in. thick.

13-17 ft { In a dism. section. Only lower 4-5 ft.  
are color banded. The very fossilif-  
erous Richmond begins 12 ft lower.



E of William Mc Brador's house, at  
E end of glen or valley, entering bound-  
ary creek.

2 1/2 mi. from Coase Springs Sta.

Clinton.

→ 9 ft below Clinton is highest sponge.

18 ft sandy decayed Madison.

→ Most sponges are found now  
at the top of the fossiliferous expo-  
sure. If the base of the banded  
Madison is 15 feet below the Clinton  
the top of the banded Madison is  
probably still beneath the sponge  
layer.

The thickness of the richly fossilifer-  
ous Richmond section was not  
measured. It equals about 5 feet  
as near as I can remember. One  
stray Columnaria was found, pre-  
sumably C. alveolata but no record  
was made.

Further S. along the creek, Columnaria  
halli occurs 17 feet below top of  
richly fossil. Richmond section.

9 feet lower than the C. halli layer  
more C. halli occurs in association  
with Tetradium vivans.

~~Phyllo~~

39 B

Samuel's.

9 ft { 1 1/2 ft chert in soil.  
7 1/2 ft. massive with Calceolites } Clinton.  
5 ft weathering to clay.  
1/2 ft. thin limestone.  
4 ft Madison like rock.

at bridge 5, E. of Hobbs. 1 mi. W. of Coase Spgs.  
E. of bridge.

Black shale

coarsely crinoid Corniferous. 2 feet seen.

11 1/2 ft. Louisville 18 feet = 2<sup>nd</sup> measured

{ Top of Waldron about on RR level.

about 7 feet of Waldron shale.

oolitic top of Laurel with

Orthothetes subplanus

Spirifer endora

Whitfieldella nitida.

W. of bridge. 16 ft Louisville. porous dol. l.

Top of Waldron is 4 feet below RR  
level. In Waldron = Rhynch. cuneata.  
Spirifer endora. Sp. radiata. Chonetophyllum.

41

at bridge 4, east of Hobbs, the middle of  
Waldron is at track level.

42

Small Pentamer. oblongus  
in Louisville, 5 ft above base

Hobbs station.

Base of Waldron is 5 ft above RR.  
oolitic layer { ~~Top of Waldron is 5 ft above RR.~~  
~~Spirifer endora. Rhynch. cuneata. Whitfieldella nitida.~~

35 ft Laurel down to shale in Laurel. See

Burdston section. The crossed out  
fossils in oolitic layer  
should remain

18 in. Blue clay shale

Limestone = Lower Laurel? 2 ft seen.

Theodore Habich. Digger of well.

Chapeeze Station. Bullitt Cr.

Chapeeze

In Waldron shale - Rhynch. cuneata. Spirifer  
endora, Spirifer radiata, Chonetophyllum.



Clermont.

Photo 1 Waldr.  
 2 Waldr. + Lams.  
 3 Waldr.

## 45 ft Louisville

33 ft above base occurs *Pentamer. oblongus*.  
 A species of *Holocyrtites* with club  
 like form and grooved top was col-  
 lected at east end of quarries, one  
 mi. E of station.

9 ft Waldr. shale, with *Atrypa retic-*  
*ularis*. base = 12 ft above RR Track.

6 in. volitic. in places 12 in. thick.

Lancet limestone.

Upper 20 ft. quarried.

Quarries extend about 1 mi. from  
 Clermont E to Hobbs station.

18 ft below top occur *Calymene*  
*Waggonensis*, common, and  
*Certhoeceras amyens* but larger,  
 no longitudinal striations as in  
*O. annulatum*.

Lancet rock used for

1. 14<sup>th</sup> St. bridge. Louisville except 2 piers on  
 Indiana side which came from Utica
2. Crescent Hill Reservoir.
3. Most canal walls at Louisville.  
 Locks made from Bedford rock.
4. Near all L & N bridge work in Ky.
5. Crabing in Louisville. Good deal.
6. Baptist church. Bardston.

Quarried opened in 1862.

Belong to L & N. R.R.

Just south of school + church at 14  
 mile post from Bardston on  
 Mt Washington road.

*Columnaria halli* on road side.  
 Farther down hill side on W of  
 road is whitish limestone  
 with Lower Silurian *Certhis occi-*  
*dentalis* + *Orthis bifurcata*

45

An eighth of a mi. S of 44, just S of  
 Steve Loyd's house. *Columnaria*  
*halli* abundant on road side - highest  
 point between Salt River + High Grove.

46

Road angle at Sam Well's house =  
 11 1/2 mi. N of Bardston.

*Columnaria halli*. Road remains  
 at about same level for long dis-  
 tance S.

47

Mrs. Geo. Abell. 8 1/2 mi. N of Bards-  
 ton. Thin bedded Lower Silurian  
 a considerable distance below  
 the Clinton. In fact very far below.

If any Clinton occurs N of Bards-  
 ton it is believed to occur not  
 farther North than 3 miles of town.  
 No exposures of Clinton occur any-  
 where near the pike.



- ? 8 ft. isolated patches of limestone at E edge of town
- 47 ft { 25 ft. continuous exposure. Upper Laurel  
1 ft blue clay  
11 feet limestone. Lower Laurel.
- 41 ft { 2 ft weathering to soft blue clay.  
1 ft 8 in. limestone. As good.  
36 ft clay shale, purple below.  
2-3 ft light brown, arenaceous limestone breaking up into pieces 4-6 in. square.
- Of the basal Niagara forming the rock last mentioned, the upper foot consists of fairly good limestone while the lower foot weathers soft

Clinton. See also page 21.

S. of bridge.

1 ft l. not cherty.  
Highest cherty layer  
with *Orthothetes subplanus*  
13 ft

Farther S, 800 ft.

1 ft not cherty  
Highest cherty bed  
8 ft 9 in.

Lowest cherty layer with  
fossils on next page = A

7 ft 5 in. l. arenaceous,  
with calcite in lower  
third.

Lowest cherty  
bed  
12 ft brown-  
ish arenaceous  
rock with cal-  
cite through out  
entire thickness

*Ordovician*  
See page 20.

Clinton Fossils

A. Clinton just S of bridge.

13 feet below top in cherty layer.

*Calymene* *Vogdesi* large head + large pygidium.

*Encrinurus* very small, pygidium as large or smaller than in *E. Thresheri* but = *punctatus* probably.

*Ilacrus Doytensis* pygidium.

*Cyclonema Clintoni* var. with raised revolving striae very distinct but not as strong as in *C. varicosum*.

? *Spirifer* like *Niagarensis*, small.

*Orthis flabellites*.

*Dalmanella elegantula*

*Platystrophia* 2 plications in sinus. both small + large form.

*Strophomena Hanoverensis* also interior of ventral valve. Is this *St. patenta*?

*Plectambonites elegantula* small.

*Plectambonites transversalis*. large.

*Rhynchonella scobina*.

*Hemitrypa Alrichi*

*Pachydictya bifurcata*.

*Rhinopora frondosa*.

Photo 4. White streak at base - lowest cherty layer. to top of highest cherty Clinton.

Photo 5. Near view of cherty Clinton.



## Ordovician.

- 1 ft. thin bedded.  
Tetradium.  
7 ft clayey limestone.
- 29 ft. 10 ft soft clay. No fossils.  
11 ft { Limestone full of fossils. Top of  
B { fossiliferous section = 11 feet above  
Coral bed

Coral bed. *Columnaria alveolata*  
*Calopocia cribriformis*.

## Ordovician fossils.

- *Rhynchotrema capax*, rare.
- *Platystrophia acutilirata*.
- *Dinorthis subquadrata*
- *Stroph. rugosa* = *vetusta*?
- *Rafinesquina alternata* large.  
Also form very flat = *fracta*.
- *Platystrophia bipinnata*
- *Strophomena acuticuma*.
- *Pentamerus vetusta*.
- *Zygospira modesta*
- *Strophomena sulcata*, small  
form, fine interior as at Dayton.
- *Byssozonia radiata*.
- *Lophospira*, small acute
- *Lophospira trochilopleura*.
- *Hebertella occidentalis*.

## Clinton. S. of bridge.

- 13 feet from top of cherty layer to  
lowest cherty layer.
- 2 ft 8 in. { 13 in. to base of quarried Clinton  
bedded { 12 in. layer of l. brownish  
7 in. layer of l. brownish
- 5 ft 6 in. { 4 3/4 ft. massive rock with calcite  
lumps, especially in lower half.  
9 in. with numerous worm  
borings at top. Thin banded.  
Clayey rock, soft. Tetradium.



At Withers Run, 1 mi. W. of Bardstown.  
E. side of creek.

- $\frac{2}{3}$  ft. basal Niagara
- $\frac{1}{2}$  ft. weathering clayey
- $12\frac{2}{3}$  ft. Thin bedded Clinton.
- 11 ft. Thick bedded massive arenaceous with calcite.
- $\frac{2}{3}$  ft. Thin bedded layer
- 5 ft. Weathering soft
- $5\frac{1}{2}$  ft. Banded Madison, greenish + red. brown.
- 8 ft 9 in. Clay rock hard above soft below.
- 1 inch. Thin bedded l. with *Strophomena* plenty.
- 5 ft. blue clay rock + limst. with fossils
- 1 ft. coral bed. *Columnaria abbreviata*
- 20 ft. down to creek level.

About 5 feet below top coral bed is  
*Palaeophyllum divaricans* +  
*Protarea retorta* = About on  
level with lower coral bed?  
Photo 10. Sycamore broken by cleet.



W. side of Withers Run, W. of Bardstown.

Photo 11. Bottom projecting layer is  
thin bedded layer at top of Ordovician.  
The top distinct layer is base of well  
bedded Clinton.

Photo. 2, 3, 4. of second set.

Junction of arenaceous Clinton base  
and soft top of Lower Silurian. The  
thin bedded layer is between.

Buffalo creek 3 mi. W. of Bardstown.

- { 2 ft. weathering soft, especially lower half.
- { 8 ft 4 in. Thin bedded Clinton.
- { 10 ft. Massive Clinton.
- 5 in. Thin bedded.
- $1\frac{1}{2}$  ft. clay rock spalling, weathering soft.
- 6 ft. Banded Madison.
- $6\frac{1}{2}$  ft. looks like greenish Madison.  
Not banded. Weathering soft.

E side of creek.

- West of Cedar Creek, 5 mi. W. of Bardstown.
- { 8 in. oolitic layer
  - ? { 10 feet poor exposure.
  - {  $34\frac{1}{2}$  feet continuous Laurel exposure.
  - 2 ft. clay layer in the Laurel
  - $9\frac{1}{2}$  ft. limestone, rather below.
  - 25 ft. Asgood clay.
  - 6 ft. Basal Asgood + top of Clinton.
  - 5 ft. thin bedded Clinton without chert.
  - 6 ft. massive with calcite.
  - 2 ft. softer rock. Is this Ordovician. It  
weathers more readily than overlying part  
but breaks up brownish like rock above.

I am not certain whether the Laurel  
exceeds 35 feet in that part of the section  
overlying the Laurel clay. The section  
appears thick but this may be due to  
a considerable westward dip of the rock.



Near mouth of Cedar Creek W. of Bardstown.

### Black Slate

8 ft. Corniferous

Upper Laurel, not measured  
Clay not exposed.

5 1/2 ft of Limestone as at other Cedar  
creek exposure.

25 ft. Good clay on S side of creek

[30 ft. Good clay on N side of creek  
= 27 1/2 ft. on average]

1 1/2 ft. Limestone. Solid here. Some half  
weathers elsewhere.

2 ft. with chert.

5 1/2 ft. thin bedded

14 ft. with calcite Botland.

5 ft. indurated clay above. Ordovician.

2 ft 6 in. Madison rock.

10 1/2 ft. Clayey

1/2 ft. One Col. alveolata.

5 ft. Fossils in clay rock.

1 ft. Coral bed. Tetradium. Col. halli.

7 1/2 ft. down to creek.

(Observed later than on p. 22)

Witter's Run. W. of Bardstown. 1 1/2 mi.

36 ft. Or good clay.

13 ft 8 in. Regular bedded Clinton fossiliferous

11 ft 8 in. Massive Botland rock.

1 ft thin bedded top of Madison.

5 ft 2 in. softer Madison

6 ft hard Madison

2 ft 6 in. Rock like above but softer.

3 1/2 ft. clayey rock weathered to soft stuff

4 in. Fossils in clay rock.

1 in Thin limestone full of good Stroph.  
planumbona (= vetusta?)

3 ft 9 in. Clayey rock with fossils

1 ft 5 in. Clay rock with fossils. at top is  
lowest thin fossiliferous hard  
blue limestone.

3 ft. soft clay rock. at very top are lowest  
Protarea and St. planumbona

3 ft. Great Coral bed. Chiefly in middle  
2 feet. Calopocia cribriformis  
rather common at cre point.  
Largest cribriformis = 8 in.  
Columnaria alveolata. Streptelasma rusticum.

2 ft. A stray Columnaria alveolata  
at top of clay rock.

7 in. Hard blue limestone. Horizon marked.

11 in. Clay rock.

9 in. Clay rock. Streptelasma.

4 in. Clay rock. One Col. alveolata.

3 ft 2 in. Clay rock. One Streptelasma

8 1/2 ft. Covered. probably soft clay and

3 ft. Clay rock. Lower Madison. hard top.

0 Creek bed. Lower Madison.



at 30 Times Distillery. At RR crossing.  
Waldron. only 4 ft exposed.  
8 in. Top of Laurel limestone dolitic

R

Coniferous chert with small *Ambocoelia*  
abundant.

7 1/2 ft. Louisville.

9 1/2 ft. Waldron

8 in. Dolitic Laurel.

S

Dolitic top of Laurel.

71

Cut E of Gasburg or

1 foot limest. lower half weathering soft.

10 ft. more white & bedded well.

8 ft. Massive Bottland. with calcite.

10 in thin bedded layer.

4 ft clay, soft at top and bottom.

8 ft. Madison bed.

18 ft soft greenish clayey rock.

1 ft. Coral bed. *Columnaria alveolata*

Photo. 12. Cut. Well bedded Clinton  
begins above the middle.

73

1/4 mi. NW of Bottland.

Lower Laurel (below clay) at top of hill.

West of Needmore. in Cane Run.  
NW of Bottland. Above bridge  
down to below bridge.

45 feet Asgood clay. S of bridge. Thick  
section probably due to dip of rock  
towards north here.

1 ft limestone. weathering below.

16 1/2 ft. whiter & better bedded.

6 ft. Massive, lower 6 in. thin bedded  
but not distinct from the rest.

1 ft. clay rock.

1 ft. soft clay.

5 ft. Greenish clay rock with *Tetradium*  
at all levels.

Madison bed.

72B

Stewart creek E of Bardston.

Fine exposure of

Laurel clay

Lower Laurel

Asgood clay

{ Clinton well bedded and

{ Bottland bed

72A

Cove creek entering Mill creek on B. pike.

Bottland bed.

1 ft Thin bedded top of Madison.

7 ft. White clay rock full of *Tetradium*.

22 ft { Heavy massive Madison.  
Hard blue l. layer at top of fossiliferous Rich-  
mond. Contains *Isotelus gigas*.  
Bubble limestone and clay.  
Great coral bed.



NW. of Fredericktown. from Chester Cecil's house, at head of road, to top of hill at farther end of ascent by Bardstown pike.

Tetradium bed with abundant Stromatopora or gr. noths. Massive.

24 ft covered

2 ft. Massive coral bed.

20 ft { white rubble limestone.  
unknown.

17 ft Madison soft clayey

4 ft. Massive Madison

14½ ft covered

15 ft. { Thin bedded clayey limest. above  
Irregularly bedded clay rock below.

9 ft. Thin bedded clayey limestone Beatricea

2 ft 4 in. Massive limestone.

8 ft 2 in. Limestone + clay with some fossils.

0 Orthis lynx, typical, abundant.

21 ft. Orthis lynx and Amb. Casei in blue l. rubble, Lynx bed apparently not thicker than 30 ft. exposure too interrupted below for study.

86 ft Not well exposed along pike, but the lower 30 ft. fossiliferous on hill side on W. side of pike.

Strophomena planumbona at base of section.

¾ mi. N. of Balltown.

Corniferous.

Laurel. Considerable thickness.

½ mi. S.W. of Balltown.

Top of Laurel not seen.

22 ft { Laurel

{ Asgood limestone.

27½ ft. Asgood clay. Dip S increases.

23 ft measured vertically! Intra 6 ¾ feet = massive.

2 in. Trace of thin bedded layer.

1½ feet part of bed below weathering soft.

6 feet rather massive. Madison?

13 feet weathering soft with Orthis and fossils near the middle.

1 foot. Coral bed. Columnaria alveolata.

2 mi. N. of Abbey La Trappe on Balltown road.

21 in. Coarsely crinoidal Corniferous. Laurel not oolitic at top.

Photo 5. 1 mi. N. of Abbey of La Trappe.



West of La Trappe.

Black shale.

11-16 ft. limestone below. More thin and clayey above. Upper Laurel.

7½ ft. limestone. Lower Laurel.

{ 2 ft. soft clay. upper Osgood clay.  
1½ ft. poor clay limst. weathering to rubble.

31 ft. soft clay. Osgood.  
Clinton - top.

88.

Half a mile (= ¼ mi?) N of New Hope.

Black shale.

8 in. thin crinoid. Coniferous.

5 ft. Laurel l. (= Osgood limestone?)

35 ft. Osgood clay

11½ ft. cherty Clinton.

2 in. chert bed. distinct.

4 ft. massive, with calcite.

4 in. soft clay. with large Tetradium.

2 feet forming whitish limestone where ~~common~~ Tetradium is common

3 feet 8 in. blue clay rock.

Tilford Station. Distillery N. of New Hope.

4 ft. Coniferous. crinoidal, cherty. Plenty of chert.

1½ ft. brown sandy rock { conglomeratic above with very small pebbles.  
Fish teeth and other fish remains in lower 1 foot.

5½ ft. clay limestone. No chert. Osgood?

15½ ft. Clinton cherty at middle + top  
Massive at base. with calcite

23 ft. { Soft blue clay  
Madison like rock not well exposed.

Great Coral bed. Columnaria alveolata.

90

Willow Spring Distillery. Between Cross Hollow + Tilford Station.

For upper 5½ feet see section above.

12 feet to top of very cherty layer.

2 in. good chert bed.

7 ft 4 in. Massive Clinton with calcite.

6 in. clayey.

2 ft 3 in. Tetradium abundant but not as common as at New Hope.

5 ft. Harder Madison bed.

Softer Madison bed.



E. of D ant.

5 ft 3 in. Corniferous. Lower 2½ feet very crinoidal.

5 ft soft Asgood clay, Clinton massive looking, with calcite in upper 2 feet.

Top chert layer is found 2 feet below top of Clinton.

The massive appearance probably due to absence of weathering since the exposure in the cut is quite fresh.

A E

West of Chicago.

Impossible to determine just how much Clinton was preserved. The following observations are the result of careful measurements.

Black shale

1 foot brown rock

6 in. crinoidal rock

Corniferous

15 feet Clinton. Lower 5 feet - massive, 8 in. thin bedded.

2 ft with Tetradium.

4 ft. Madison bed but here it is weathered so as to be very soft.

6 ft. weathering softer than bed above.

8 ft. hard at top, softer below.

2 ft. Coral bed. Columnaria halli.

Chicago. West of distillery in N.W. part of Town.

Black shale.

2½ ft Corniferous { 6 in brown rock  
2 ft. crinoidal

15 ft Clinton  
Thin bedded

110

West of Goretto.

Black slate.

Cornif. { 6 in. brown rock with worm burrows.  
crus { 3 in. not exposed.

17½ ft Clinton.

Soft clayey rock.

105.

North of Goretto.

Black slate.

Corniferous. { 2 ft 3 in. of brown rock  
with worm burrows at top  
9 in. white crinoidal l.  
weathered away in places.

3 ft 3 in. regular bedded, containing calcite + some chert.

7 feet. Massive Clinton with calcite.

6 feet 9 in soft clayey at top  
Madison bed, top.



Long Smith.  $1\frac{1}{2}$  mi. SE of Chicago, on  
St. Mary's road.

- 5 ft. Clinton. Massive basal part + calcite  
1 ft thin bedded layer.
- 5 ft. clayey rock, like Mad. below, but softer.
- 5  $\frac{1}{2}$  ft. Madison, slightly harder than above.
- 12 ft. Softer rock.

1 ft. Great Coral bed, in places forming  
a hard l. bed. *Columnaria halli*.  
*Strophelasma rusticum* + other  
Richmond fossils.

Below Coral bed just described  
are various thin blue limestone  
beds with *Gabechia olivensis*  
+ *Calopepla cribriformis*. One  
thin with *Lepiditina calcigena*.  
The levels at which these beds occur  
have not been recorded

1  $\frac{1}{2}$  ft. Dense blue l. with *Lepiditina*  
*calcigena*, small gasteropods  
and *Gabechia olivensis*.

40 feet of Lower Madison. Base not  
seen here.

The *Orthis lynx* bed should occur  
about 27 feet lower down.

W. D. Miles.

Black slate.

5 ft. Clinton. E of house is Clinton.  
Chert on the road side.

The 5 feet of Clinton are found  
400 ft S of his house, on S.  
side of creek crossing.

4 feet of clay rock, spalling. In  
the lower part occurs *Tetradium*.  
Where *Tetradium* is common the  
rock becomes hard as at New  
Hope.

2 ft. poorly exposed.

1 ft hard rock.

4 ft poorly exposed.

4 ft hard clay rock.



NE corner of Raywick. where road  
to Chicago turns down hill and  
crosses the creek. 1901.

Black Shale.

5 ft crinoidal Devonian?

8 ft Clinton. Lowest layer with calcite, but  
no chert. Contains *Heliothis*, *Pachy-*  
*dictya*, *calymma*.

7 ft soft clayey Northward, but an in-  
durated clay rock 2 mt towards.

3 ft 4 in. hard clay rock with calcite + chert.

8 ft 9 in. clay rock. spalling.

2 ft harder clay rock.

6 1/2 ft. soft clayey with thin limestone  
beds in lower half. Containing  
Richmond fossils.

1 ft. Coral bed. *Col. alveolata*. *halli*.  
*Calopocia*, *Tetradium*.

There are fossils for 7 feet below  
this Coral bed. Here there is a  
3 inch limestone layer with  
fossils = collected.

Later observations 1902.

7 ft. Bedded cherty Clinton.

7 ft massive crystals of calcite. Botland.

10 1/2 ft. clay rock, spalling. No fossils.

3 ft. massive clay.

4 ft 9 in. chiefly clayey with thin limestone  
containing Richmond fossils 1 ft above base.

4 in close bedded blue l. with Richmond fossils.

2 ft 6 in. some fossils in clay rock.

0 Coral bed. *Columnopora halli*, *Calopocia*  
*cribriformis*, *Streptelasma*.

4 ft. fossiliferous clay, blue. var Richmond  
fossils.





## Raywick. Richmond fossils.

<i>Hebertella sinuata</i> —	common
<i>Strophomena sulcata</i>	3 specimens
<i>Rhynchotrema capax</i> —	1
<i>Strophomena rusticum</i>	1
<i>Beatricea undulata</i>	2
<i>Platystrophia top form</i>	C
<i>Protarea vetusta</i>	1
<i>Byssomychia radiata</i>	4
<i>Heterospongia subanura</i>	2

39 A

## Cane Springs. Richmond fossils.

<i>Strophomena vetusta</i> ?	Ccc
<i>Rafinesquina like pacta</i>	1
<i>Lophospira tropidospira</i>	Ccc
<i>Lophospira perangulata</i> , Var.	cc
<i>Strophomena rusticum</i>	3
<i>Rhynchotrema capax</i>	3
<i>Zygospira modesta</i>	3
<i>Hebertella sinuata</i>	C
<i>Protarea vetusta</i>	1
<i>Platystrophia top form</i>	C
<i>Tetradium fibratum</i>	1
<i>Platystrophia acutilirata</i>	1
" half way to "	several.

## Mt Washington Ky.

*Beatricea undulata*.

## Madison Ind.

*Heterospongia aspera*. Large & nodular.

## Connersville Ind.

*Beatricea nodulosa*. *Dellerophium bilobatum*.

## Richmond Ind.

*Beatricea undulata*.

## Bardston.

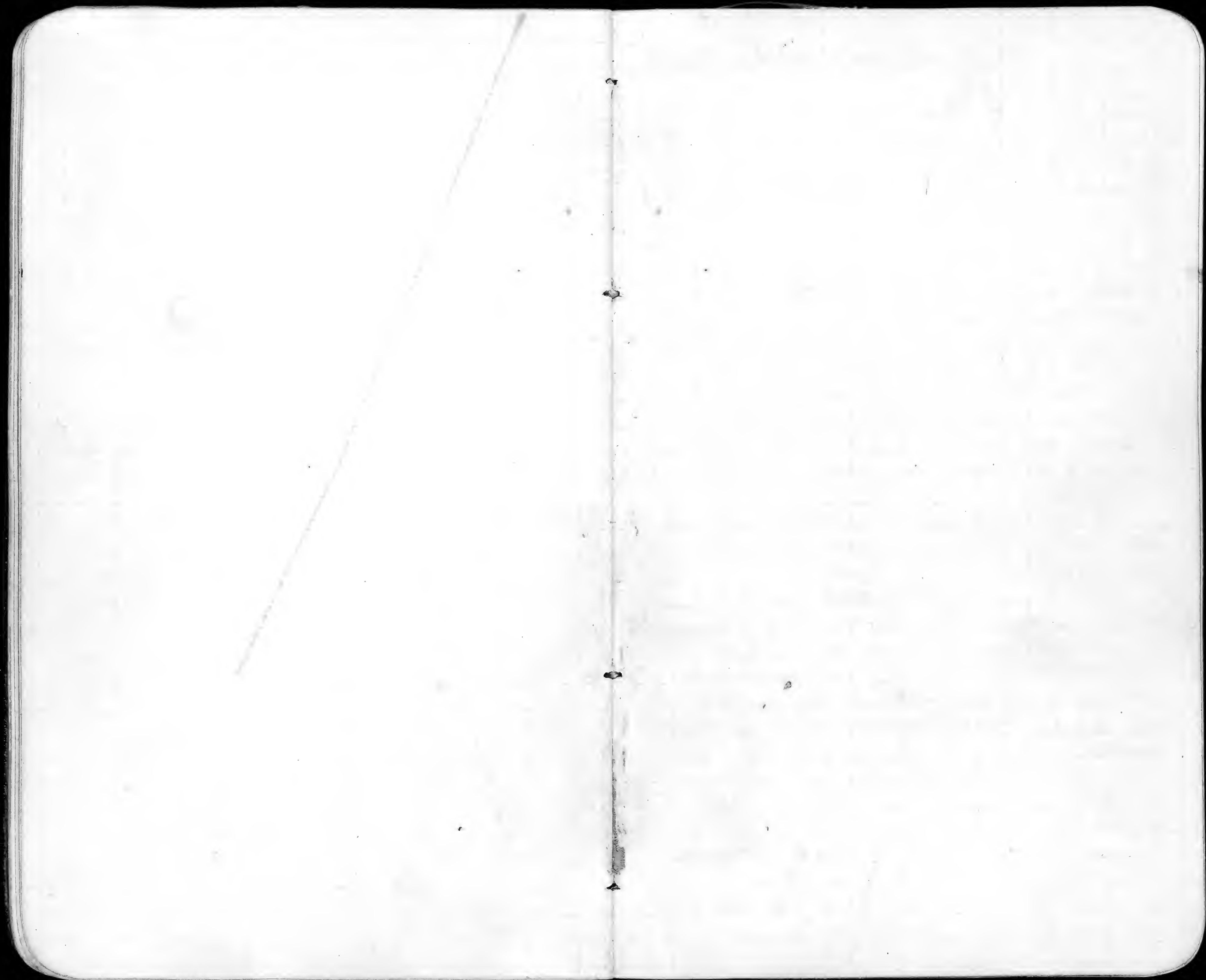
<i>Rafinesquina alternatopacta</i>	8
<i>Strophomena vetusta</i> —	C
<i>Rhynchotrema capax</i> —	C
<i>Strophomena sulcata</i> —	3
<i>Dimorphis subquadrata</i>	1
<i>Platystrophia acutilirata</i>	1
" half way to " "	C
<i>Zygospira modesta</i>	C
<i>Strophomena rusticum</i>	5
<i>Protarea vetusta</i>	1
<i>Byssomychia radiata</i>	1
<i>Lophospira tropidospira</i>	C
<i>Lophospira perangulata acuminata</i>	C
but not so acute	

## SE of Lebanon. Mudd, beyond Sulphur Spg.

<i>Beatricea nodulosa</i>	1
<i>Beatricea undulata</i>	1
<i>Platystrophia laticosta</i> ?	C
<i>Hebertella sinuata</i>	1
<i>Heterospongia Krotti</i>	3+1.
<i>Lophospira ovula</i>	C
<i>Lophospira Burdani</i>	C

## Near town. Lebanon.

<i>Orthis lynx</i>	C
<i>Platystrophia laticosta</i>	C
<i>Hebertella sinuata</i>	
<i>Lophospira burdani</i>	
<i>Heterospongia Krotti</i> —	4





*Stromatopora subcylindrica*  
Vol. 7. p. 20.

The form of this species is a subcylindrical tube, somewhat compressed, folded centrally, with clay, prominent, conical elevations, varying in height from 1-10th to 1-20th of an inch or more, distributed irregularly over the surface. Radiating lines, more or less conspicuous, crossing the apices and slopes of the prominences, giving some of them a stellate appearance. On the general surface are shown distinct circular or elongate papillae, about 1/20 of an inch apart or more, no or only a few of any kind observed.

A microscopic section shows an irregular porous structure of the interior of the body.

The specimen used for this description is 2 1/2 inches long, slightly arched on one side and nearly straight on the opposite side; 3/4 of an inch ~~in diameter~~ in diameter at one end; ~~1/4 to 1/2 of an inch in thickness~~ 1 inch in the middle, and 1/2 an inch at the other end; 1/10th of an inch in the thickness from the outer surface to the hollow part. How much larger the specimen may have been is not known, as both ends have a fractured appearance.

Referred to the writer for description by Prof R. H. Holbrook, of the National Mineral University, Lebanon, Warren Co, Ohio. Found near Moron, in the same county, in the shaly beds of the Cincinnati Group.

Vol. 9. p. 38, = synonym. J. F. J.  
*Leptochia antipetala* Ulrich

*Stromatopora tubularis*  
*subcylindrica*  
*leptochia*  
*scabra*  
*papillata*  
*leptochia*  
*leptochia*, *Nicholson*  
*indianaensis*

*tubularis* Cincinnati Moron  
+ Lebanon.

*subcylindrica*, Moron Clark  
with + Moron Ind.

Ottawa Naturalist.

I. M. Lumber

*Labeche Huronensis* Billings.

*Gabichia*.

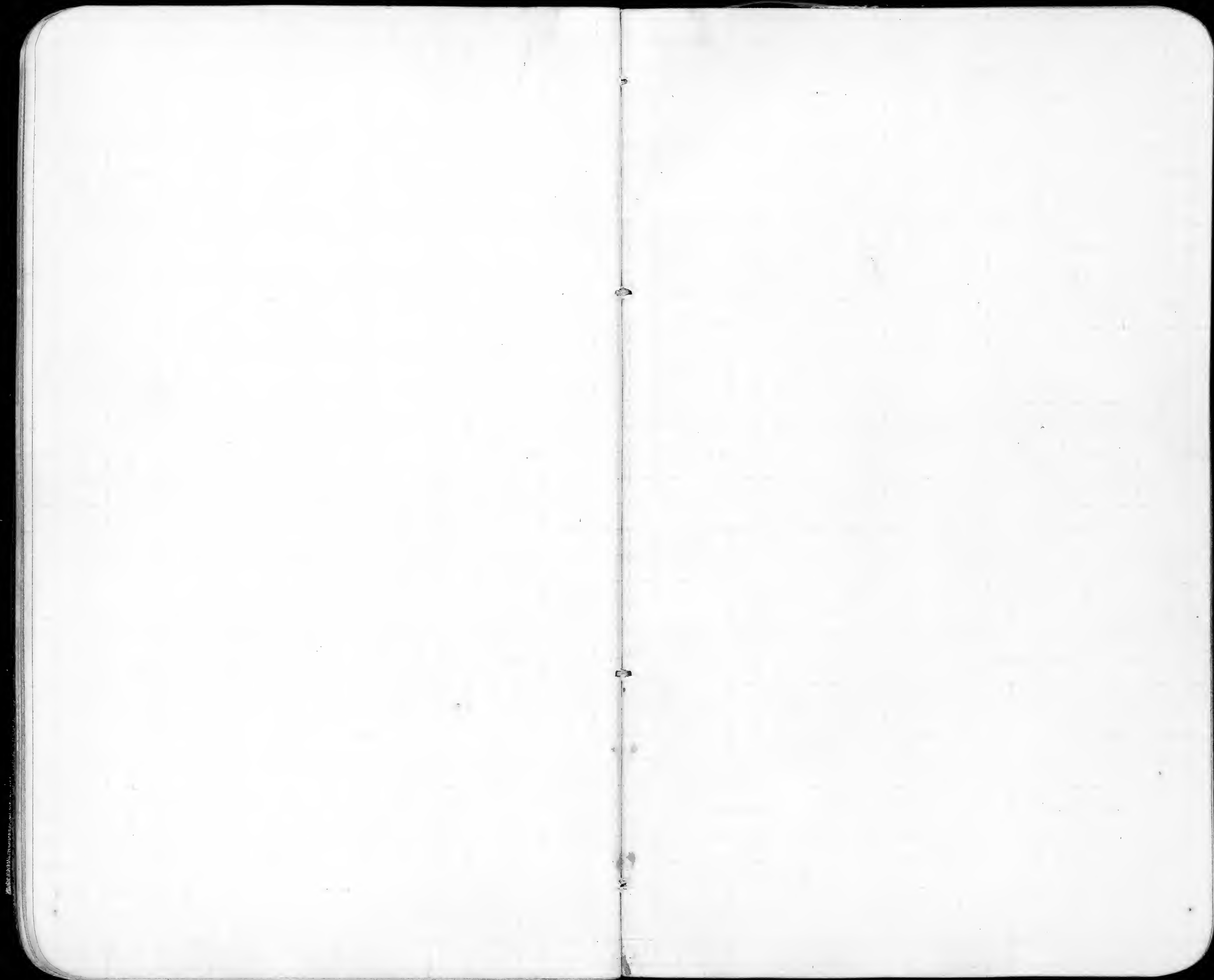
*Stenopora Huronensis*. types in Mus.  
of G. M. Lumber of Canada.  
From Cape Smyth, Lake Huron.  
Collected by Dr. R. Bell in 1859  
(Not by Ford)

Pl. VII p. 1 of Ford's paper. *Gabichia*  
on *Tetradium pubescens*. - in crusty

Fig. 1a of Ford's paper. small  
portion of large number of *Gabichia*.  
5 1/2 in. across. - in crust.  
Both are types of Billings.

Dr. Michener states that at Cape  
Smyth material is better preserved  
than that of any accessible place.









Mr

Cape Girardeau, Missouri

*Glyptocrinus finlayi*, Shumacher

Rept I + II, p. 110, 154, 194, 219.

Rept '73, p. 263

*Ituriscrinus flexuosus* Shumacher

Rept I + II, p. 110, 154, 219

Rept '73, p. 263.

*Crinoid*, small undetermined species.

*Glyptocrinus*, 2 undetermined species.

Rept '73, p. 263.

*Ptychocrinus splendens*, S. A. Miller.  
Taken from Montmorrey's Cape Girardeau  
+ Chester, Ill.

*Calacrinus*?

Rept I + II, p. 110, 219

*Contanter*?

Rept II, p. 154

Rept '73, p. 263.

Mo.

Cape & inland limestone

*Tentaculites incurvus*, Shumard.  
Repts I+II, p. 110, 154, 195, 219, Rept '73, p. 263.  
Vol. III, 222, p. 27, 342, 343.  
*Tentaculites major*, Mo. name, partially  
for the next species. Rept '73, p. 263.

*Tentaculites tenuistriatus*, M + W.  
Vol. III, p. 341. Cited from Cincinnati  
Group, Alex. Co. 222.  
*Avicula*, n. sp. Rept I+II, p.  
*Pterinea thebesensis*, M + W.  
Vol. III, p. 354. Cited from lower Wapiti  
Silurian, Alex. Co. 222.

\* *Conularia*.  
Vol. III, p. 27. Cited from Cincinnati Gr.  
of Alex. Co.

*Turbo*  
Vol. I+II, p. 110, 154, 219  
Partially the next species.

\* *Cyclonema* plate. Figured but not described.  
*Eleutheronema*  
Vol. I+II, p. 154, 219.

*Eleutheronema* 2 or 3 sp.  
Vol. II, p. 219

\* *Cyrtolites imbricatus*. M + W.  
Vol. III. Cited from Cincinnati Gr. Alex.  
Co. p. 27. 340.

*Leptaena ovata*, Shumard.  
Repts I+II, p. 110?, 154?, 205, 219.  
Rept '73, p. 264

*Leptaena* n. sp.  
Rept II, p. 219

*Orthio Mississippensis*, Shumard.  
Repts I+II, p. 110?, 154?, 205, 219.  
Rept '73, p. 264.

*Atrypa*  
Rept II, p. 154  
Ortho. 2 or 3 sp.  
Rept II, p. 219.

*Platychonella nervosa* sp.  
Rept '73, p. 264.

\* *Strophomenella subplanum*.  
Vol. II. Dark gray limestone at  
Thebes. 222. p. 349.

\* *Centronella oblongaria*, M + W.  
Vol. III, p. 352. This local bed of  
gray limestone, Alex. Co. 222.

\* *Mentella*  
Vol. III, p. 354. Figured on plate C.  
Not named.  
*Ornatopora*, 2 or 3 sp.  
Rept II, p. 219.

*Stictopora*. Rept '73, p. 264  
*Cladipora*. Rept '73, p. 264  
*Oratopora*. Rept '73, p. 264



Mo.

Cape Girardeau Limestone.

Cyphaeus Girardeanensis, Shumard  
Repts I+II, p. 110, 154, 197, 219, Rept '73 p. 263  
Vol. III. Shumard, Alex. Co. p. 27.  
Euchinus deltoideus, Shumard.  
Rept II, p. 154, 198, 219, Rept '73 p. 263

Acidaspis Halli, Shumard.  
Rept I+II, p. 110, 154, 200, 219, Rept '73 p. 263  
Proctus depressus, Shumard, Not de-  
scribed,  
Repts I+II, p. 110, 154, 219, Rept '73 p. 263

Chelonus

Rept II, p. 154, 219,

Asaphus

Repts I+II, p. 110. Can this have been the  
hypostoma of a true trilobite. I found  
no Asaphus and it seems out of place  
in our Upper Silurian fauna. Said to  
be associated in some slab with  
Cyphaeus, Acidaspis + Proctus in Canada  
above. Also p. 219,

x Asaphus Canalis, Canada

Vol. III. Shumard, Alex. Co. p. 27.

This species was described by Canada  
from the Chazy of New York.

x Admanites (Meeke + Worthen) D. Danae.  
Vol. III, 98. 2 m. above Datto. in  
South part of Upper Silurian.

*Oratus depressus*, Shumard, 1853=71  
Mrs. name. Cited from Cape Girardeau list.

*Cypripedium floridanum* Shumard  
Cited from Upper Sil. = Cape Girardeau list.  
2 mi. above Cape Girardeau.

*Gypsochroma floridanum*. Not determinable  
1855. according to W. + Sp. Cited  
from Cape Girardeau l. proba.  
by 2 mi. above Cape Girardeau.

*Citharus inaequalis*. Hall: 52  
from California limestone. Cited  
by Shumard '55 to '71 from N. Va.  
area of Cape Girardeau Cr. 1 mi.  
at one of hop lands on highway.

*Tentaculites inaequalis* Shumard '55  
Cited from Cape Girardeau l.  
2 mi. above Cape Girardeau.  
*Tentaculites inaequalis* Shumard = Mrs.  
name. in same locality.

*Hemocrinus flexuosus*, Shumard  
5-5 in 2 same locality, Mrs.  
name.

*Orthis Merriami*, Shumard.  
'55. Cited from 2 mi. above Cape  
Girardeau.  
*Septalium aestivum* Shumard '55  
= *Orthis* see to Schuchert.  
Cited from Cape Girardeau l.

*Murchisonia magna*, Hall, Cited from  
Balena limestone in Wisconsin, Rep. IV.  
*Receptaculites* to *Orthis*. Hall, Cited as *Orthis*  
typical of the Galena l.

*Macilinea magna*, de Saur, is a *Clary*  
species from New York. *Orthis* di-  
vided *M. constricta* + *Orthis* *undulata*  
from the Galena of Wisconsin.

*Tentaculites* in the clay to the Hudson  
a large fragment in the clay to the Hudson  
River bridge N.Y.  
Substrate of argillite is cited from the One-  
ida = N.Y.

*Strophomena lenticaulis* is cited from  
the Oneida to the Hudson River Ga.  
*Murchisonia gracilis* Hall is cited from  
the Oneida to the Hudson River Ga.

*Murchisonia carinifera*, Shumard,  
Cited from the Oneida at Glenora.  
St. Louis Cr. M.S.



? *Callisaurus* *nanifer*. *Rena*. 1860.  
*Niagara* *Wagon* + *Decor* *co*. Type  
 in *Man. Mo.* *Boston* = *uncalypso*  
*crinus* / *Rena*.  
 1875 *Decor* *crinus* *crinus*. Hall =

*S. speciosus*. *Rena*.  
*Niagara*. *Decor* + *Gery* *co*.  
 + *Gery* *co*. *Decor* *crinus*.

*Macropis* *crinus* *crinus*. *Rena*.  
 1866. *Niagara*. *Decor* + *Wagon* *co*. Type  
 in *Man. Mo.* *Boston* *crinus*  
*Macropis* *crinus* *crinus*. *W* + *sp*.  
*Niagara* *crinus*. *Decor* *crinus*. Type  
 in *W* + *sp*. *all*.

*Locosaurus* *lacc*. *Rena*. *Niagara*.  
*Gery* *co*. *Term*. *Man. Mo.* *Boston*.

1852 *Stratopora* *flexuosa* (Hall) cited by *Shumard*  
 group of *Niagara*, later the *Shumard* *Heldberg*  
 at 1 mi. above *Shepherd's Landing*. *Cape*  
*Shumard* *crinus*.  
*Stratopora* *crinus* *crinus*, neck + *Post*  
 1868. Cited from *Shumard* *Held*. near  
*Baird's* *Landing*. *Gery* *co*.  
 Cited from  
 the *Niagara*. 1 mi. above *Shepherd's*  
*Landing*. by *Shumard*. *Man. Mo.*  
 '55-71. *Cape* *Shumard* *crinus*.

*Macropis* *crinus* *crinus*, *Walden* *crinus* '21.  
 Cited by *Shumard* from *Niagara* at  
 1 mi. above *Shepherd's* *Landing*. *Cape*  
*Shumard* *crinus*. '55-71.  
*Macropis* *crinus* *crinus*, *Shumard*.  
 1855. Cited from *Cape* *Shumard*  
*crinus*, about 2 mi. above *Cape*  
*Shumard*.

*Colymbus* *crinus*, *Shumard*, 1855, Cited  
 originally from the *Shumard* *Held*. at 1 mi.  
 below *Shumard*, but in '55-71  
 also from *Niagara* 1 mi. above *Shep-*  
*herd's* *Landing*. *Cape* *Shumard* *crinus*.  
*Colymbus* allied to *C. nebulosus*. *Shumard*.  
*Colymbus* (2 species) *Niagara*.  
*Colymbus* (2 species) 1 mi. above *Shepherd's*  
*Shumard's* *Landing*. neck + *Post*. 25  
 cited from *Niagara*, 2 mi.  
 above *Shepherd's* *Landing*. *Shumard*.  
 1855. Cited  
 from *Cape* *Shumard* *crinus*. in  
*Cape* *Shumard* *crinus*.

*Discidium tenebrosius*, Northern.  
 1890. Clifton. Wayne Co. Tenn. Niagara Falls.  
 Type in Ill. State Coll.  
 Springfield.  
*Discidium tenebrosius*, Bre-  
 mer. 1860. Decatur + Wayne Co.  
 Miner. Min. Coal Co.  
*Discidium notillianum*. Hall.  
 Apparently also in Niagara Falls.  
 Western Tenn. W. + Sp.  
*Discidium notillianum*. W. + Sp. n. sp.  
 Niagara Falls. Not a genuine one.  
 + Sp. One found. Type in Coll. of  
 Regarded by Bremer  
 as identical with his *Discidium*  
 Lauro. Sil. Fauna Tenn. 1860. p. 48.  
*Discidium notillianum*. W. + Sp. n. sp.  
 = *Discidium lauro* of Bremer. Type  
 in W. + Sp. Coll.  
 1889. Niagara Falls.  
*Discidium notillianum*. W. + Sp. n. sp.  
 Wayne + Decatur Co. Type in  
 Northern Coll. Springfield. + in  
 W. + Sp. Coll.  
*Discidium notillianum*. W. + Sp.  
 = *Discidium notillianum*. Type in  
 W. + Sp. Coll. 2nd. n. sp.  
 Mr. J. C. Comp. 2nd. n. sp.  
*Discidium notillianum*. W. + Sp. n. sp.  
 1892. = *Discidium notillianum*. W. + Sp. n. sp.  
 Niagara Falls. Wayne Co. Tenn. Type  
 in Ill. State Coll.  
*Discidium notillianum*. W. + Sp. n. sp.  
 White's Creek near Nashville. Deca-  
 tur + Wayne Co. Tenn. Type in  
 S. S. G. only Coll.



Ms.

*Otylocistrum splendens*, S.A. Miller.  
1883. *Oratus* group. Cape Canadian  
Mts, and Alexander Cr. 900. Type  
in S.A. Miller coll.  
*Glyptocistrum Fomichelli*, Miller. 1874.  
Macon + Youngsville. Upper  
part of Hudson River Gr. System  
coll. of Wm. F. F. Fomichell. Cited  
by Hays as from Hudson of Mr.  
Fudnichello. *Trinacromia*. Mr.  
*Edmonia pectiniformis*. Hall. Am.  
Mss. Albany NY + Perry Co. N.Y.  
New York Vol III 304 Pl. p. III.

Ky.

*Otylocistrum Halli*. Lyon. Niagara  
Group (?) *formicula*. Ky. Type lost.  
But specimens in Boden Coll. at  
New Providence. Ind. See W + Sp.  
*Macrotylocistrum Noeki*. Lyon. 1861.  
Niagara Gr. Gathers in G. Ky. Type  
in map coll. in Boden's material





885

2x



